

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

- 1-16. (Cancelled)
17. (Currently amended) A transgenic plant which has an altered profile of tocopherols in its seeds or oils compared to non-transgenic plants of the same species wherein said plant has been transformed to contain a heterologous genetic construct comprising a plant  $\gamma$ -tocopherol methyltransferase coding sequence, wherein the coding sequence encodes the expression of a  $\gamma$ -tocopherol methyltransferase protein that (1) has at least two SAM binding domain consensus sequences; that (2) when aligned with SEQ ID NO:4 has amino acid sequences corresponding to the following motifs in SEQ ID NO: 4: WGDHMHG at residues 79-86, GCGIGGS at residues 134-141, ESGEHMP at residues 202-208, and TWCHR at residues 231-235; and that (3) will increase the level of  $\alpha$ -tocopherol present in a plant when expressed in a plant.
18. (Currently amended ) Seed of the plant of claim 17 comprising said heterologous genetic construct.
19. (Cancelled)
20. (Currently amended) A transgenic plant seed of claim 18 of a plant species in which  $\alpha$ -tocopherol is natively not the predominant tocopherol in seeds, the transgenic plant seed containing  $\alpha$ -tocopherol as the most abundant tocopherol present in the transgenic plant seed.
- 21-26. (Cancelled)

27. (Currently amended) A method of ~~altering a characteristic of a plant~~ making a transgenic plant of claim 17 comprising the step of incorporating into the genome of the plant ~~[[a]] said genetic construct comprising a  $\gamma$ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the  $\gamma$ -tocopherol methyltransferase coding sequence comprises at least one S-adenosylmethionine (SAM) binding domain conserved in all plant  $\gamma$ -tocopherol methyltransferases in the  $\gamma$ -tocopherol biosynthetic pathway and lacks a sterol binding domain, such that when the coding sequence is expressed in the plant, the characteristic of the plant is altered to~~ increase the  $\alpha$ -tocopherol: $\gamma$ -tocopherol ratio in said plant ~~produce more  $\alpha$ -tocopherol compared to a control plant that is not transformed with the construct.~~
28. (Cancelled.)
29. (Currently amended) The method as set forth in claim 27 wherein the plant is selected from the group consisting of maize, soybean, rapeseed, cotton, peanut, broccoli, lettuce, banana, potato, barley, wheat, palm, and rice.
- 30-31. (Cancelled.) .
32. (Currently amended) ~~[[A]]~~ The method of making a transgenic plant of claim 27 ~~altering a characteristic of a plant comprising the step of incorporating into the genome of the plant a genetic construct comprising a  $\gamma$ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the  $\gamma$ -tocopherol methyltransferase coding sequence encodes a protein selected from the group consisting of:~~
- (a) having an amino acid sequence as shown in SEQ ID NO:2 or 4; ~~or~~

- (b) ~~an amino acid sequence having at least about 35% sequence identity to SEQ ID NO:4; and~~
- (c) ~~an amino acid sequence having at least about 61% sequence similarity to SEQ ID NO:4.~~
33. (Currently amended) A plant having a characteristic genetically altered through incorporation into the genome of the plant a genetic construct comprising a  $\gamma$ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, the coding sequence encoding the expression of a protein ~~selected from the group consisting of:~~
- (a) having an amino acid sequence as shown in SEQ ID NO:2 or 4; or
- (b) ~~an amino acid sequence having at least about 35% sequence identity to SEQ ID NO:4; and~~
- (c) ~~an amino acid sequence having at least about 61% sequence similarity to SEQ ID NO:4.~~
34. (Currently amended) A genetic construct comprising a plant  $\gamma$ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the coding sequence encodes the expression of a  $\gamma$ -tocopherol methyltransferase protein which ~~(1) has at least one SAM binding domain conserved in all plant  $\gamma$ -tocopherol methyltransferases in the  $\gamma$ -tocopherol biosynthetic pathway; (2) which is at least 35% identical in amino acid sequence to SEQ ID NO: 4; (3) which has the following amino acid sequences corresponding to the following motifs in SEQ ID NO: 4 when aligned by sequence alignment with SEQ ID NO: 4: WGDHMHHG at residues 79-86, GCGIGGS at residues 134-141, ESGEHMP at residues 202-208, and TWCHR at residues 231-235; and (4) which will increase the level of  $\alpha$ -tocopherol present in a plant when expressed in a plant that (1) has at least two SAM binding domain consensus sequences; that (2) when aligned with SEQ ID NO:4 has amino acid sequences corresponding to the following motifs in SEQ~~

ID NO: 4: WGDHMHG at residues 79-86, GCGIGGS at residues 134-141, ESGEHMP at residues 202-208, and TWCHR at residues 231-235; and that (3) will increase the level of  $\alpha$ -tocopherol present in a plant when expressed in a plant.

35-38. (Cancelled.)

39. (New) A transgenic plant of claim 17 wherein the plant is selected from the group consisting of maize, soybean, rapeseed, cotton, peanut, safflower, castor, sunflower, cabbage, carrot, pears, apple, cabbage, cauliflower, broccoli, lettuce, banana, potato, barley, wheat, palm, and rice.
40. (New) A seed of a plant of claim 39 comprising said heterologous genetic construct.